Claims

[c1] 1.A component of a vehicle disk brake, the component having at least one hole formed therein and a tuned mass damper disposed substantially within the hole.

[c2] 2.The apparatus according to claim 1 wherein the hole is blind, a thinned section of the component forming a bottom of the hole, and the tuned mass damper comprises the bottom of the hole and a mass attached directly to the bottom such that deflection of the bottom permits the tuned mass damper to oscillate relative to the component.

[c3] 3.The apparatus according to claim 1 wherein the hole is blind, a thinned section of the component forming a bottom of the hole, and the tuned mass damper comprises a spring member attached to the bottom and a mass attached to the spring member, deflection of the spring member permitting the tuned mass damper to oscillate relative to the component.

[c4] 4.The apparatus according to claim 1 wherein the tuned mass damper comprises a spring member attached to a side wall of the hole and a mass attached to the spring member, deflection of the spring member permitting the tuned mass damper to oscillate relative to the component.

[c5] 5.The apparatus according to claim 1 wherein the tuned mass damper comprises:
a casing adapted to be inserted into the hole such that an outer surface of the casing contacts an inner surface of the hole firmly to transfer mechanical vibration between the component and the casing;
a spring member projecting from an inner surface of the casing; and
a mass attached to the spring member.

[c6] 6.The apparatus according to claim 1 wherein the hole is located at an anti-node area of an operational deflection shape.

[c7] 7.The apparatus according to claim 1 wherein the component is a backplate for mounting a brake pad.

[c8] 8.A brake assembly comprising:
a brake pad operative to apply a braking force to a brake rotor, said brake pad being subject to vibration during braking;
a backplate connected to the brake pad, said backplate having a hole formed therein; beginbeginand
a tuned mass damper disposed substantially within the hole and connected to the backplate for damping vibrations associated with operation of the brake assembly.

[c9] 9.The apparatus according to claim 8 wherein the hole is blind, a thinned section of the backplate forming a bottom of the hole, and the tuned mass damper comprises the bottom of the hole and a mass attached directly to the bottom such that deflection of the bottom permits the tuned mass damper to oscillate relative to the backplate.

[c10] 10.The apparatus according to claim 8 wherein the hole is blind, a thinned section of the component forming a bottom of the hole, and the tuned mass damper comprises a spring member attached to the bottom and a mass attached to the spring member, deflection of the spring member permitting the tuned mass damper to oscillate relative to the backplate.

[c11] 11.The apparatus according to claim 8 wherein the tuned mass damper comprises a spring member attached to a side wall of the hole and a mass attached to the spring member, deflection of the spring member permitting the tuned mass damper to oscillate relative to the backplate.

[c12] 12.The apparatus according to claim 8 wherein the tuned mass damper comprises:
a casing adapted to be inserted into the hole such that an outer surface of the casing contacts an inner surface of the hole firmly to transfer mechanical vibration between the backplate and the casing;
a spring member projecting from an inner surface of the casing; and
a mass attached to the spring member.

[c13] 13.The apparatus according to claim 8 wherein the hole is located at an anti-

node area of an operational deflection shape assumed by the backplate during application of the brakes.